REMARKS

Claims 28-50 are pending. Applicant has amended claims 28, 36, and 44.

The Examiner objected to claims 28-50, indicating that the claims require interpretation "from the context of the application." All claim terms require some level of interpretation and indeed are to be read in light of the specification. Applicant is unaware of the statutory requirement under which the Examiner is objecting to these claims. Nevertheless, Applicant has amended the claims to address the Examiner's concerns regarding the terms "links" and "mechanism" and responds to the Examiner's objection regarding the term "nonhierarchical relationships" below. If the Examiner does not withdraw these objections, Applicant respectfully requests that the Examiner provide a citation to the statutory or M.P.E.P. section under which the Examiner is objecting to these claims.

The Examiner objected to the claim term "non-hierarchical relationships" indicating that the term is not found in the specification and requires interpretation. M.P.E.P. § 2111.01(I) states, "during examination...words of the claim must be given their plain meaning unless the plain meaning is inconsistent with the specification." Applicant's claims distinguish the representation of hierarchical relationships and non-hierarchical relationships in a hierarchical model. For example, claim 28 recites "a hierarchical model in which hierarchical relationships between elements are defined by the model and non-hierarchical relationships between elements and content of elements are not defined by the model." It is commonly known in the art that hierarchical models, such as XML, provide a fixed view of data that poorly represents relationships between elements that are non-hierarchical. The Microsoft Computer Dictionary, 5th Edition defines "hierarchical model" as follows: "[a] model used in database management in which each record may be the 'parent' of one or more child records...a hierarchical model can be, and usually is, regarded as a tree." A tree structure represents parent-child relationships effectively, but is ineffective for representing other types of relationships (e.g., circular or recursive

relationships), referred to in Applicant's specification as having a "tangled structure." U.S. Publication No. 2002/0143815, [0020]. The term "non-hierarchical relationships" refers to these types of relationships that are not parent-child relationships. Applicant respectfully submits that the term "non-hierarchical relationships" has a plain meaning that is readily understood by those of ordinary skill in the art, and that Applicant's use of the term is in accordance with the plain meaning. Accordingly, Applicant respectfully requests that the objection be withdrawn.

The Examiner has rejected claims 28-50 under 35 U.S.C.§ 102(e) over Stapel (6,912,538). Applicant respectfully traverses this rejection.

Applicant's technology provides for conversion from a hierarchical model of a document to a new representation of a document, called the item, relation, attribute (IRA) model, that uses the same mechanism to represent hierarchical and non-hierarchical relationships. Hierarchical models, such as XML, represent hierarchical relationships explicitly, such as by nesting of elements. A difficulty with such hierarchical models is that there is no support for explicitly representing non-hierarchical relationships between elements. As a result, creators of documents adhering to a hierarchical model use various mechanisms, other than that used to represent hierarchical relationships, to represent non-hierarchical relationships. Since the creators may use different mechanisms, it can be difficult to identify these implicit, non-hierarchical relationships automatically. As a result, different parsing techniques currently need to be developed for each different mechanism used to represent a non-hierarchical relationship. Applicant's technology provides conversion from a hierarchical model of a document to the IRA model in which hierarchical and non-hierarchical relationships are represented in the same way.

Stapel, which the Examiner relies upon in rejecting the claims, describes an editing method for defining document schemas for validating and generating structured documents. A user first provides an input schema in the form of an XML Document Type Definition (DTD) that defines a permitted set of relationships between document elements.

For example, the DTD may define that an element of type A can have child elements of type B or C, but not any other types. Stapel, col. 5:39-41, 8:52-57. Stapel converts the DTD schema into a set of tables, called a matrix representation, which is algorithmically easier to use for validating documents than the original DTD. Stapel, col. 6:66-7:12. Stapel mentions "non-hierarchical" data only twice, and does so only to suggest that the input DTD can contain flat information (such as a list of top-level elements with no child elements), rather than tree-structured information with many levels. Stapel, col. 6:30-32. Stapel neither teaches nor suggests that hierarchical and non-hierarchical relationships can be represented in the same way. Rather, Stapel's hierarchical relationships are represented by the XML nesting of elements, and Stapel's non-hierarchical relationships are represented by a flat listing of elements, which are different mechanisms. Moreover, Stapel preserves the hierarchical and non-hierarchical relationships when a DTD is loaded into the matrix representation, "the matrix representation methods described herein preserve the structural characteristics of the DTD...the matrix transformation processes may preserve the underlying hierarchical order...[and] non-hierarchical orderings of the input DTD...are likewise preserved." Stapel, col. 20:61-21:2.

In contrast, Applicant's technology identifies both hierarchical and non-hierarchical relationships in an XML document and converts them to a new representation that explicitly represents both types of relationships using the same mechanism. Because Stapel does not teach, suggest, or motivate the use of the same mechanism to represent both hierarchical and non-hierarchical relationships, claims 28-50 are patentable over Stapel. Each of these claims recites that the same mechanism, a relation between items, is used to represent both hierarchical and non-hierarchical relationships: "such that the new representation represents hierarchical and non-hierarchical relationships between items using an item, relation, attribute object model." Moreover, there is nothing in Stapel to suggest the combination of elements that is recited by each claim.

In response to Applicant's previous arguments distinguishing Applicant's technology from Stapel, the Examiner indicated that "the limitations in the claims are drawn to a link,

which is read as being any appropriate link within the data structure" and that "Stapel teaches a link." Office Action, November 14, 2006, p.19. As noted above, Applicant has amended the claims to recite a "relation" rather than a "link." Stapel does not teach a relation as recited by the amended claims. In addition, the Examiner indicated that "there is no specification or disclosure that such link be limited to an arrow." Office Action, November 14, 2006, p.19. Applicant's specification defines a "relation" as "a named, directed relationship between items." U.S. Publication No. 2002/0143815, [0019]. Therefore, Applicant respectfully submits that a relation is associated with a direction (e.g., John loves Mary as illustrated in Figure 1). Stapel does not describe representating a direction of the relationship between related elements. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Based upon these remarks and amendments, Applicants respectfully request reconsideration of this application and its early allowance. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned at (206) 359-3265. Applicants believe all required fees are being paid in connection with this response. However, if an additional fee is due, please charge our Deposit Account No. 50-0665, under Order No. 418268851US from which the undersigned is authorized to draw.

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Respectfully submitted,

By _____

J. Mason Boswell
Registration No.: 58,388
PERKINS COIE LLP
P.O. Box 1247
Seattle, Washington 98111-1247
(206) 359-8000
(206) 359-7198 (Fax)
Attorneys for Applicant